33-68.

Response

Applicants acknowledge that since the Office Action dated August 1, 2000 was prepared prior to entry of the Supplemental Preliminary Amendment filed on August 7, 2000, only claims 1-32 were examined in this Office Action. However, the Supplemental Office Action dated August 14, 2000 was prepared in view of the Supplemental Preliminary Amendment. Only claims 1-32 were examined in the Supplemental Office Action, since claims 1-32 were considered by the Examiner as constructively elected by original presentation and claims 33-68 were withdrawn as directed to a non-elected invention.

During a telephone interview conducted on August 28, 2000, the Examiner confirmed that since the Supplemental Office Action dated August 14, 2000 repeated the contents of the first Office Action dated August 1, 2000, and established claims 1-32 as constructively elected, the shortened statutory period set in the initial Office Action dated August 1, 2000 has been disregarded. **The current shortened statutory period for response has been set by the Supplemental Office Action and thus expires on November 14, 2000.**

Priority under 35 U.S.C. 119

Applicants note the Examiner's acknowledgment of the claim for priority under 35 U.S.C. 119 and receipt of the certified copy of the priority document.

Drawings

A Notice of Draftperson's Patent Drawing Review form PTO-948 has not been provided along with the Office Action dated August 1, 2000, or the Supplemental Office Action dated August 14, 2000. **The Examiner is respectfully requested to provide a Notice of Draftperson's Patent Drawing Review form and to confirm on the record the status the drawings as filed along with the present application.**

Information Disclosure Statement

An Information Disclosure Statement was filed on September 20, 2000. **The Examiner is respectfully requested to acknowledge receipt of the Information Disclosure Statement and that the documents will be cited of record.**

Claim Rejections-35 U.S.C. 102

Claims 1-3, 9, 17-22, 30 and 31 have been rejected under 35 U.S.C. 102(b) as being anticipated by the Imahashi reference (U.S. Patent No. 5,695,564). This rejection is respectfully traversed in view of the following.

The multi-chamber system of an etching facility for manufacturing semi-conductor devices of claim 1 includes in combination a cassette stage, a transfer path adjacent to the cassette stage for providing space for transportation of wafers, "the transfer path being at atmospheric pressure", a plurality of processing chambers "aligned with the transfer path" and a transfer mechanism. Applicants respectfully

submit that the Imahashi reference as relied upon by the Examiner does not disclose these features.

The Examiner has alleged that transfer unit U2 as illustrated in Fig. 1 of the Imahashi reference may be interpreted as the transfer path of claim 1. However, as described in column 5, lines 23-27 of the Imahashi reference, each of units U1 to U8 has a casing 2 of a pressure-resistant structure with one or more openings 4. Each opening 4 is provided with a flange 6. When each opening 4 is air-tightly closed via flange 6, **each casing 2 constitutes a vacuum chamber.** As further described in column 13, lines 62-67, units U1 to U4 are individually connected to the inert gas supply system and the exhaust system, and can be independently set at a predetermined negative pressure. The non-used openings of the transfer units U2 are sealed air-tight by blind plates BP. Unit U2 of the Imahashi reference is thus maintained at a vacuum pressure.

In contrast, the transfer path of the multi-chamber system of claim 1 **is maintained at atmospheric pressure.** As described on page 13 of the present application and in contrast to conventional central chambers, a vacuum is not formed in transfer path 100 illustrated in Fig. 4. Since a vacuum is not formed in the transfer path, the wafers may be vacuum absorbed to the transfer arm, thus providing faster wafer transfer. As further described on page 22 of the application, since the transfer path is maintained at atmospheric pressure, expense of the facilities and installation can be minimized by reducing the space requiring a vacuum state. Moreover, the connection with other processing facilities is made easier, such that efficiency of space

usage is improved, thereby increasing transportation speed of wafers. Applicants therefore respectfully submit that the multi-chamber system of claim 1 distinguishes over the Imahashi reference as relied upon by the Examiner, and that this rejection of claims 1-3, 9 and 17-19 is improper for at least these reasons.

With regard to claim 2, the Imahashi reference as relied upon by the Examiner does not disclose or even remotely suggest that process units U1 and U5 as illustrated in Figs. 1 and 2 are installed in multiple layers. The Imahashi reference therefore fails to disclose a multi-chamber system wherein a plurality of processing chambers are aligned in multi-layers as featured in claim 2, to thus greatly reduce the space and width occupied by the facilities. Applicants therefore respectfully submit that the multi-chamber system of claim 2 distinguishes over the Imahashi reference as relied upon by the Examiner, and that the rejection of claim 2 is improper for at least these additional reasons.

With regard to claim 3, process units U1 and U5 of the Imahashi reference do not include "a gate formed on a side away from the transfer path, the gate being selectively open and closed to allow passage of the wafers". Process units U1 and U5 include gates formed on sides **directly adjacent** transfer unit U2. Applicants therefore respectfully submit that the multi-chamber system of claim 3 distinguishes over the Imahashi reference as relied upon by the Examiner, and that the rejection of claim 3 is improper for at least these additional reasons.

The multi-chamber system of claim 20 includes in combination a cassette stage, a transfer path adjacent to the cassette stage for providing space for transportation of

wafers, "the transfer path being at atmospheric pressure and having a width slightly larger than a diameter of the wafers", a plurality of processing chambers "aligned in a plurality of layers parallel to and beside the transfer path" and a transfer mechanism "capable of vertical/horizontal reciprocal movement installed in the transfer path for loading and unloading the wafer stacked on the cassette stage to the plurality of processing chambers". Applicants respectfully submit that the Imahashi reference as relied upon by the Examiner does not disclose these features.

As emphasized previously, the Imahashi reference does not maintain a transfer path at atmospheric pressure and does not arrange processing units U1 and U5 in a plurality of layers parallel to and beside a transfer path. Moreover, although transfer arm 12 as illustrated in detail in Fig. 3 is extendable and also vertically moved by driving unit 18, transfer arm 12 clearly is not disclosed as capable of vertical/horizontal reciprocal movement within a transfer path to load and unload wafers to a plurality of processing chambers that are arranged in a plurality of layers. The vertical movement as provided by driving unit 18 is limited merely to the extent necessary for alignment with a corresponding wafer of a stack. Accordingly, Applicants respectfully submit that the multi-chamber system of claim 20 distinguishes over the Imahashi reference as relied upon by the Examiner, and that the rejection of claims 20-22 and 30 is improper for at least these reasons.

With regard to claim 22, the Imahashi reference does not disclose a multi-chamber system having a plurality of processing chambers aligned in a plurality of layers parallel to and beside a transfer path that is maintained at atmospheric pressure,

wherein the plurality of layers of the processing chambers are 2 to 5 layers. Applicants therefore respectfully submit that the multi-chamber system of claim 22 distinguishes over the Imahashi reference as relied upon by the Examiner, and that the rejection of claim 22 is improper for at least these additional reasons.

With regard to claim 31, Applicants respectfully submit that the multi-chamber system distinguishes over the Imahashi reference for at least similar reasons as set forth above. The Imahashi reference as relied upon by the Examiner does not disclose a transfer path that is maintained at atmospheric pressure, and a plurality of processing chambers arranged in multi-layers and aligned in parallel beside the transfer path, wherein a first cassette stage for mounting a cassette having unprocessed wafers stacked thereon is placed opposite a second cassette stage for mounting a cassette having processed wafers stacked thereon. Applicants therefore respectfully submit that the multi-chamber system of claim 31 distinguishes over the Imahashi reference as relied upon by the Examiner and that this rejection is improper for at least these reasons.

Claim Rejections-35 U.S.C. 103

Claims 4-8, 10-12, 14-16 and 23-29 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Imahashi reference, in view of the Hiroki reference (U.S. Patent No. 5,306,380). Applicants respectfully submit that the Hiroki reference as relied upon by the Examiner does not overcome the above noted deficiencies of the Imahashi reference as relied upon by the Examiner. The Hiroki reference as

specifically relied upon by the Examiner does not disclose or suggest the combination of a transfer path that is maintained at atmospheric pressure and a plurality of processing chambers aligned with the transfer path. Moreover, the Hiroki et al. reference as specifically relied upon by the Examiner does not disclose or suggest the above-noted combination wherein the plurality of processing chambers are also installed in multiple layers. Applicants therefore respectfully submit that the multi-chamber system of claims 4-8, 10-12, 14-16 and 23-29 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that the rejection of these claims is improper for at least these reasons.

Claims 13 and 32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Imahashi reference in view of the Hiroki reference, in further view of the Maydan et al. reference (U.S. Patent No. 4,951,601). Applicants respectfully submit that the Maydan et al. reference as relied upon by the Examiner does not overcome the above noted deficiencies of the previously combined prior art. The Maydan et al. reference does not disclose or suggest a multi-chamber system including the combination of a transfer path maintained at atmospheric pressure and a plurality of processing chambers aligned with the transfer path. Moreover, the Maydan et al. reference as specifically relied upon by the Examiner does not disclose or suggest the above noted combination, wherein the plurality of processing chambers are also installed in multi-layers. Applicants therefore respectfully submit that claims 13 and 32 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that the rejection of claims 13 and 32 is improper for at

least these reasons.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections and to pass the claims of the present application to issue for at least the reasons set forth above.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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